This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1-11 (canceled).

12 (previously presented). The nucleic acid mimic according to claim 22 wherein said target molecule is a nucleic acid.

13 (previously presented). The nucleic acid mimic according to claim 22 wherein said sterically bulky substituent is -R', -OR', -SR', $-N(R')_2$, $-C(R')_3$, -C(= X)(R'), -C(= X) (-Y-R') or $S(=O)_{1-2}$(-Y-R') wherein:

X is O, S or NH;

Y is O, S or NH; and

R' comprises at least 3 atoms and is C_1-C_{50}-alkyl, C_2-C_{50}-alkenyl, C_2-C_{50}-alkynyl, C_7-C_{50}-alkyl-aryl, C_6-C_{50}-aryl, C_{10}-C_{50}-naphthyl, C_{12}-C_{50}-biphenyl, C_7-C_{50}-aryl-alkyl, pyridyl, imidazolyl, pyrimidinyl, pyridazinyl, quinolyl, acridinyl, pyrrolyl, furanyl, thienyl, isoxazolyl, oxazolyl, thiazolyl and biotinyl, wherein R' can be substituted one or more times by -NO, $-NO_2$, $-SO_3^-$, -CN, -OH, $-NH_2$,

-SH, -PO_3^{2-}, -COOH, -F, -Cl, -Br and -I.

14 (previously presented). The nucleic acid mimic according to claim 22 wherein said base is a naturally or non-naturally occurring pyrimidine base.

15 (original). The nucleic acid mimic according to claim 14 wherein said sterically bulky substituent is bound to C-6, C-5 or N-4 of said naturally occurring pyrimidine base.

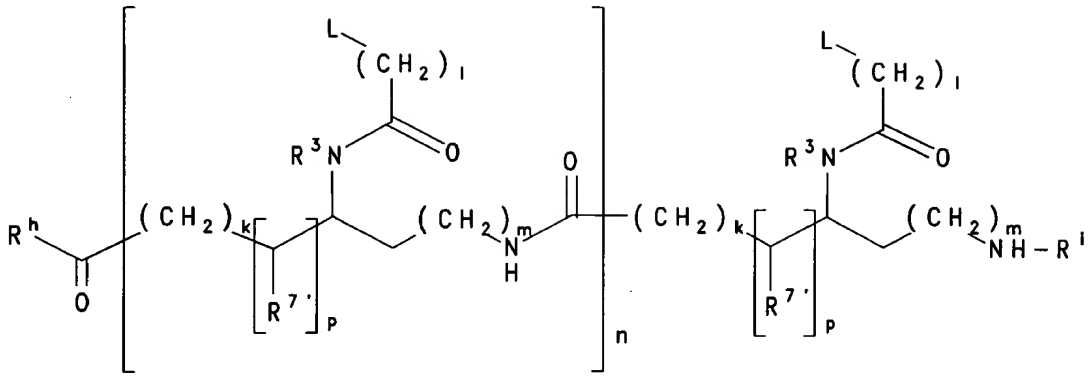
16 (original). The nucleic acid mimic according to claim 15 wherein said sterically bulky substituent is bound to N-4 of said naturally occurring pyrimidine base.

17 (original). The nucleic acid mimic according to claim 16 wherein said naturally occurring pyrimidine base is cytosine.

18 (original). The nucleic acid mimic according to claim 16 wherein said sterically bulky substituent is (C=O)-R" wherein R" is C_1-C_{20}-alkyl or C_6-C_{18}-aryl.

19 (original). The nucleic acid mimic according to claim 18 wherein said sterically bulky substituent is (C=O)-C_6H_5.

20 (previously presented). A nucleic acid mimic of the formula (IIIa):



(IIIa)

wherein:

each L is independently selected from the group consisting of hydrogen, phenyl, heterocyclic base moieties, including those substituted with a sterically bulky group or groups, naturally occurring nucleobases, and non-naturally occurring nucleobases, at least one L being a heterocyclic base substituted with at least one sterically bulky substituent;

each $R^{7'}$ is independently selected from the group consisting of hydrogen and the side chains of naturally occurring alpha amino acids;

each R^3 is independently hydrogen, a conjugate, $(C_1\text{-}C_4)$alkyl, hydroxy- or alkoxy- or alkylthio-substituted $(C_1\text{-}C_4)$alkyl, hydroxy, alkoxy, alkylthio or amino;

n is an integer from 1 to 60;

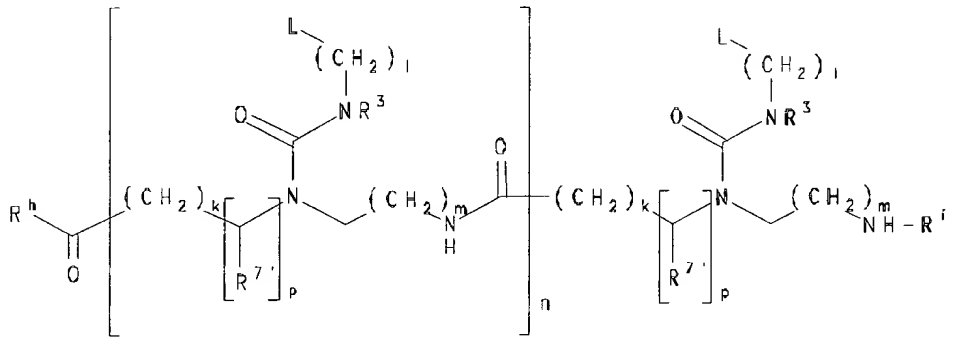
each of k, l, and m is independently zero or an integer from 1 to 5;

p is zero or 1;

R^h is OH, NH_2 or -NHLysNH$_2$; and

R^i is H or $COCH_3$.

21 (previously presented). A nucleic acid mimic of the formula (IIIb):



wherein:

each L is independently selected from the group consisting of hydrogen, phenyl, heterocyclic base moieties, including those substituted with a sterically bulky group or groups, naturally occurring nucleobases, and non-naturally occurring nucleobases, at least one L being a heterocyclic base substituted with at least one sterically bulky substituent;

each R^7 is independently selected from the group consisting of hydrogen and the side chains of naturally occurring alpha amino acids;

each R^3 is independently hydrogen, a conjugate, $(C_1\text{-}C_4)$alkyl, hydroxy- or alkoxy- or alkylthio-substituted $(C_1\text{-}C_4)$alkyl, hydroxy, alkoxy, alkylthio or amino;

n is an integer from 1 to 60;

each of k, l, and m is independently zero or an integer from 1 to 5;

p is zero or 1;

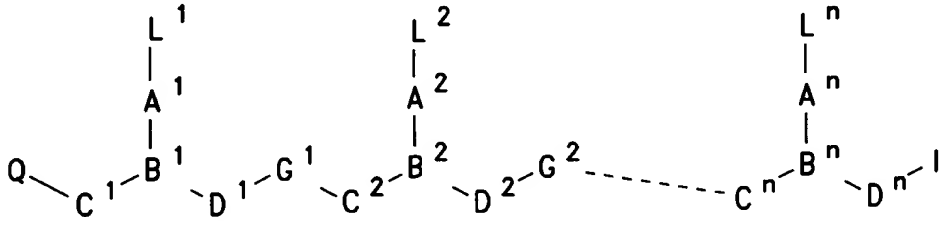
R^h is OH, NH_2 or -NHLysNH$_2$; and

R^i is H or $COCH_3$.

22 (currently amended). A nucleic acid mimic in admixture with at least one target molecule selected from the group consisting of nucleic acids, transcription factors, carbohydrates and proteins, said mimic comprising a non-naturally occurring backbone structure to which are appended a plurality of heterocyclic bases,

at least one of said bases being substituted with at least one sterically bulky substituent at a position one, two or three atoms removed from the position of attachment of said base to the backbone:

the nucleic acid mimic has formula (I):



(I)

wherein:

n is at least 2,

each of L^1-L^n is independently selected from the group consisting of hydrogen, hydroxy, (C_1-C_4)alkanoyl, naturally occurring nucleobases, non-naturally occurring nucleobases, aromatic moieties, DNA intercalators, nucleobase-binding groups, heterocyclic moieties, and reporter ligands, at least one of L^1-L^n being a naturally occurring nucleobase or non-naturally occurring nucleobase substituted with at least one sterically bulky substituent;

each of C^1-C^n is $(CR^6R^7)_y$ where R^6 is hydrogen and R^7 is selected from the group consisting of the side chains of naturally occurring alpha amino acids, or R^6 and R^7 are independently selected from the group consisting of hydrogen, (C_2-C_6)alkyl, aryl, aralkyl, heteroaryl, hydroxy, (C_1-C_6)alkoxy, (C_1-C_6)alkylthio, NR^3R^4 and SR^5, where R^3 and R^4 are hydrogen, a conjugate, (C_1-C_4)alkyl, hydroxy- or alkoxy- or alkylthio-substituted (C_1-C_4)alkyl, hydroxy, alkoxy, alkylthio or amino, and R^5 is hydrogen, (C_1-C_6)alkyl, hydroxy-, alkoxy-, or alkylthio- substituted (C_1-C_6)alkyl, or R^6 and R^7 taken together complete an alicyclic or heterocyclic system;

each of D^1-D^n is $(CR^6R^7)_z$ where R^6 and R^7 are as defined above;

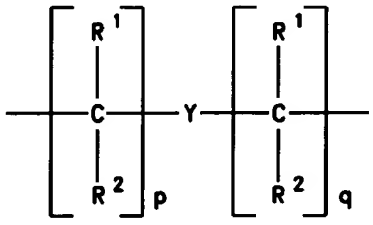
each of y and z is zero or an integer from 1 to 10, the sum y + z being greater than 2 but not more than 10;

each of G^1-G^{n-1} is $-NR^3CO-$, $-NR^3CS-$, $-NR^3SO-$ or $-NR^3SO_2-$, in either orientation, where R^3 is as defined above;

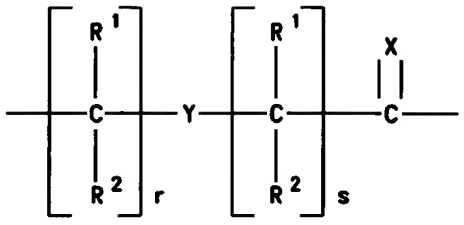
each pair of A^1-A^n and B^1-B^n are selected such that:

(a) A is a group of formula (IIa), (IIb) or (IIc) and B is N or R^3N^+; or

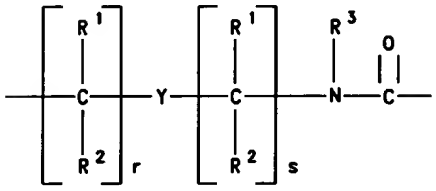
(b) A is a group of formula (IId) and B is CH;



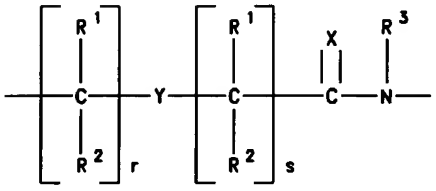
(IIa)



(IIb)



(IIc)



(IId)

where:

X is O, S, Se, NR^3, CH_2 or $C(CH_3)_2$;

Y is a single bond, O, S or NR^4;

each of p and q is zero or an integer from 1 to 5;

each of r and s is zero or an integer from 1 to 5;

each R^1 and R^2 is independently selected from the group consisting of hydrogen, $(C_1$-$C_4)$alkyl which may be hydroxy- or alkoxy- or alkylthio-substituted, hydroxy, alkoxy, alkylthio, amino and halogen;

each of G^1-G^{n-1} is $-NR^3CO-$, $-NR^3CS-$, $-NR^3SO-$ or $-NR^3SO_2-$, in either orientation, where R^3 is as defined above;

Q is $-CO_2H$, $-CONR'R''$, $-SO_3H$ or $-SO_2NR'R''$ or an activated derivative of $-CO_2H$ or $-SO_3H$; and

I is $-NHR'''R''''$ or $-NR'''C(O)R''''$, where R', R", R''' and R'''' are independently selected from the group consisting of hydrogen, alkyl, amino protecting groups, reporter ligands, intercalators, chelators, peptides, proteins, carbohydrates, lipids, steroids, oligonucleotides, $-LysNH_2$ and soluble and non-soluble polymers.